
block.array

COMMUNICATIONS PROTOCOL & INFRASTRUCTURE LAYER FOR CONSUMERS AND ENTERPRISE BUSINESSES

Transport, Logistics and Enterprise Solutions

Prepared by: Sam Bacha, Micah Osborne, Yuri Senyut

December 13, 2017

Revision: 0.7.2

contact@blockarray.com

Notice	3
Overview	12
Introduction	13
Problems	14
How the software library works	15
BDI - the Blockchain Data Interface Protocol	16
XONS - eXtensible OBJECT NAME SERVICE	17
GS1 Barcodes	19
Development Projects & progress	20
Visual SmartContract Framework	23
Roadmap	24
ARY GS1 Protocol	25
Visual Smartcontracts - use case	27
Virtualized Grey Pool - use case	28
Supported blockchains	29
Putting it all together	30
Crowd sale Information	31

NOTICE

ARY TOKENS MAY NOT BE USED TO REGISTER OR TRACK WEAPONS, FIREARMS, KINETIC WEAPONS, REGULATED ITEMS SUCH AS ALCOHOL, TOBACCO, CHEMICAL OR BIOLOGICAL AGENTS, EXPORT CONTROLLED ITEMS AS DEFINED BY ANY FEDERAL AGENCY IN THE UNITED STATES OF AMERICA, RADIOLOGICAL, NUCLEAR, OR WEAPONS OF MASS DESTRUCTION

THIS DOCUMENT TAKES PRECEDENT OVER ANY
OTHER DOCUMENT ISSUED BY US

NOTICE TO THOSE PARTICIPATING IN THE "CROWD SALE"/ "TOKEN GENERATION
EVENT"

*** End User License Agreement**

ARY TOKENS HOLD NO FINANCIAL OR EQUITY CLAIM ON BLOCKARRAY LLC. ARY TOKENS DO NOT IMPLY A COMMON ENTERPRISE BETWEEN YOU, THE "PURCHASER" OF ARY TOKENS AND THE COMPANY "BLOCKARRAY LLC" OR ITS REPRESENTATIVES. ARY TOKEN HOLDERS HOLD NO GOVERNANCE IN THE OPERATIVE DEALINGS OF BLOCKARRAY LLC OR ANY OF ITS SUBSIDIARIES.

ARY TOKENS SHOULD NOT BE SEEN AS AN INVESTMENT INTO BLOCKARRAY LLC. PURCHASE OF THE ARY TOKEN ENABLES CERTAIN RIGHTS TO THE ARY TOKEN "PROTOCOL", WHEREAS IF YOU HAVE LEGITIMATELY PURCHASED THE "TOKEN" YOU MAY USE THE UNDERLYING PROTOCOL AND ASSOCIATED SYSTEMS WITHOUT ADDITIONAL COST LESS ANY CUSTOMER SERVICE OR SUPPORT INITIATED BY YOU THE "TOKEN HOLDER".

WHAT THE TOKEN IS NOT AND SHOULD NOT BE CONSIDERED:

1. Ownership interest in Block Array LLC, including a general partnership;
2. Equity interest;
3. Share of profits and/or losses, or assets and/or liabilities;
4. Status as a creditor or lender;
5. Claim in bankruptcy as equity interest holder or creditor;
6. Holder of a repayment obligation from the system or the legal entity issuer of the ARY TOKEN ("BLOCK ARRAY LLC")

Purchasers of the ARY TOKEN SHALL have the following RIGHTS:

1. Rights to program, develop or create features for the "protocol"
2. Rights to access or license the protocol;
3. Rights to charge a toll for such access or license;
4. Rights to contribute labor or effort to the protocol;
5. Rights to utilize protocol outputs

BLOCK ARRAY LLC, acting as the licensor of the "ARY TOKEN" grants in perpetuity the RIGHTFUL OWNERS of ARY TOKENS the license to the underlying protocol of the "ARY TOKEN" and any and all associated rights. You the "TOKEN HOLDER" act as the licensee, who SHALL receive those rights OR a portion of those rights in order to

use said protocol and parts of the overall system. Any associated rights provided to each token holder are accomplished through the initial issuance of the token or by possessing the token through legitimate means (such as BUT NOT LIMITED TO, buying the token from an exchange or directly from the owner of the token but not limited to the aforementioned processes).

Purchasers should also be mindful of the potential risks involved buying any "TOKEN", as these arrangements and the parties involved operate online and may not be regulated, and investors may be exposed to heightened risks of fraud. Digital tokens traded on any secondary market may give rise to risks of insufficient liquidity or volatile and opaque pricing. Purchasers should fully understand the features of any products or business projects they intend to invest in, and carefully weigh the risks before making an investment.

BLOCK ARRAY LLC, ITS SUBSIDIARIES, PARENT COMPANY, EMPLOYEES AND ANY REPRESENTATIVE OF THE COMPANY MAKE THE EXPLICIT STATEMENT:

***** THAT POSSESSION OR PURCHASE OF THE ARY TOKEN BY EITHER DIRECT OR INDIRECT MEANS DOES NOT GRANT ANY EQUITY, DEBT CLAIM, DEBENTURE, COLLECTIVE INVESTMENT SCHEME, SECURITY, COMMODITY, FUTURE, OPTION, INVESTMENT VEHICLE, INVESTMENT INSTRUMENT, OR ANYTHING SIMILARLY NOTED.**

The Purchaser is purchasing this TOKEN for their own use to access the ARY TOKEN protocol and/or software, and not with a view to, or for resale in connection with the expectation of realizing a profit from their purchase of the ARY TOKEN. ARY TOKENS ARE YOUR RESPONSIBILITY TO

KEEP SAFE AND MANAGE, WE DO NOT OFFER SECURITY, SUPPORT, OR REIMBURSEMENT FOR ANY LOST TOKENS. ***

ANY VALUE OF THE NETWORK MAY BE DECOUPLED FROM FINANCIAL SUCCESS OF BLOCK ARRAY LLC AND/OR ARY TOKENS.

TOKEN HOLDER / POSSESSOR RIGHTS: THESE RIGHTS ARE DEPENDENT ON THE OWNER OF THE TOKEN MAINTAINING THE TOKEN IN THEIR POSSESSION. WE CAN NOT BE HELD RESPONSIBLE FOR LOST, STOLEN, MISPLACED OR OTHERWISE COMPROMISED ACCOUNTS. We SHALL not reimburse, credit, warranty, create or otherwise compensate ANY person, employee, customer or entity that has had ARY TOKENS in their possession, either directly or indirectly, lost, stolen, compromised, "burned", destroyed, or any variation thereof.

Limitation of Liability.

In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall Block Array LLC be liable to You, "Token Holder" for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor/Block Array has been advised of the possibility of such damages.

Company Representations

To its knowledge, the Company owns or possesses (or can obtain on commercially reasonable terms) sufficient legal rights to all patents, trademarks, service marks, trade names, copyrights, trade secrets, licenses, information, processes and other intellectual property rights necessary for its business as now conducted and as currently proposed to be conducted, without any conflict with, or infringement of the rights of, others.

The performance and consummation of the transactions contemplated by this TOKEN do not and will not:

- (i) violate any material judgment, statute, rule or regulation applicable to the Company;
- (ii) result in the acceleration of any material indenture or contract to which the Company is a party or by which it is bound; or
- (iii) result in the creation or imposition of any lien upon any property, asset or revenue of the Company or the suspension, forfeiture, or non-renewal of any material permit, license or authorization applicable to the Company, its business or operations.

The Company is a LLC duly organized, validly existing and in good standing under the laws of the state of its incorporation, and has the power and authority to own, lease and operate its properties and carry on its business as now conducted

In the event any one or more of the provisions of this instrument is for any reason held to be invalid, illegal or unenforceable, in whole or in part or in any respect, or in the event that any one or more of the provisions of this instrument operate or would prospectively operate to invalidate this instrument, then and in any such event, such provision(s) only will be deemed null and void and will not affect any other provision of this instrument and the remaining provisions of this instrument will remain operative and in full force and effect

and will not be affected, prejudiced, or disturbed thereby. All rights and obligations hereunder will be governed by the laws of the State of Delaware or Wyoming without regard to the conflicts of law provisions of such jurisdiction and SHALL be of OUR choosing.

Block Array LLC Reserves the right to modify, change or otherwise alter this agreement at its sole discretion.

Interested Parties in the ARY Token, please take note of the following:

Who should buy ARY Tokens:

Small businesses looking to have GS1 Barcodes
Manufacturers interested in our software license

Who should NOT buy ARY Tokens:

Speculators
People looking to make money purely based on price appreciation
People who do not understand the technology behind the Token

This is not an exhaustive list by any means, but provides a general idea of who should and should not purchase our tokens.

For more information on GS1, see: <https://www.gs1.org/terms-use>

Open to ONLY the following countries:

U.S.A

N.A.T.O Member Countries

E.U. Member Countries

Albania, Belgium, Bulgaria, Canada, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Republic of Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Sweden Slovenia, Spain, Turkey, the United Kingdom

Israel

South Africa

India

Japan

Mexico

New Zealand

Australia

British Commonwealth Associated Countries

If you live in: China, Singapore, South Korea, Philippines, Hong Kong, Crimea Region of Ukraine, Cuba, Iran, North Korea, Burundi, Central African Republic, Democratic Republic of the Congo, Libya, Lebanon, Sudan, South Sudan, Somalia, Belarus, Iraq, Yemen, Myanmar (formerly Burma), Russia/Ukraine, Zimbabwe, Balkans, Venezuela, Iran, Pakistan, Russia, Egypt, Malaysia, , Kuwait, Lebanon, Syria, United Arab Emirates, Saudi Arabia,

or are otherwise listed on OFAC or are a SDN you can not participate. If your country was not mentioned in the Open To list, you can not participate.

this page left blank.

This document contains the primary information and is the most up-to-date. We offer the older documents as they have more information for specifics, but do not contain information such as Roadmaps or Token information. Join our Telegram and ask questions if you have any.

**** This document you are reading takes precedent for any information that may be found below *****

Technical research whitepaper

<http://bit.ly/blockarray-whitepaper>

A “visual” summary of how XONS and our Software works

<http://bit.ly/blockarray-visualsummary>

Sign-up for whitelist

<http://bit.ly/blockarray-whitelist-signup>

telegram group

https://t.me/blockarray_ito

OVERVIEW

Problem

Barcodes don't provide much information besides what company is associated with it and the product identification.

Solution

Create a protocol and infrastructure to enable consumers and businesses to be able to communicate with each other through the use of barcodes

Products

GS1 Barcodes anchored to the blockchain with ARY Tokens

Software libraries

Mobile Applications

Visual SmartContracts

Array.Network - Powered with ARY Tokens

Goals

Create a semi-centralized barcode system that offers both normal GS1 Barcodes along with unique anti-counterfeit barcodes. In order to comply with existing laws and regulations (e.g. firearms, chemicals, biological agents, etc) necessitate a "party" to discern what products are not allowed to be anchored to the blockchain and tracked. Implement a protocol that can take blockchain transaction IDs and user permissions into EPCIS-style event data.

Project Outline

We will outline our Consumer, Enterprise, and Logistics mobile applications. Provide a brief overview of the ARY Token, the associated protocols that the token is for and various implementations of our protocols that use the ARY Token.

- ARY Tokens are used to anchor new GS1 Barcodes to the Ethereum blockchain
 - ARY Tokens are used to validate software licensing for commercial use
 - ARY Tokens to be used for virtualized grey-pool for truck drivers
 - ARY Tokens to provide a "toll" for access to outputs of platform-specific protocols
-

INTRODUCTION

At the core of any traceability program is the requirement to identify and track individual products. BlockArray can revolutionize businesses' supply chain operations product, shipment changes of custody, business processes, and traceability events. Block Array also can provide increased business intelligence and chain of custody logs via actionable analytics, demand forecasting and alerts.

- Why does your project need to be on a blockchain?
 - Some countries restrict how data for sensitive products, such as weapons or chemical/biological/radioactive items can be stored on computers. Barcode data may be required to be hosted in the country and not on a global cloud system. See GS1 ONS 2.0.1 – Political Concerns
- Are you creating your own blockchain?
 - We are using the Ethereum blockchain to “anchor” records by burning a token for creating a timestamp. A proof is a JSON-LD document, that contains the information to cryptographically verify a piece of data is anchored to a blockchain. It proves the data existed at time it was anchored. We also have our own chainpoint nodes for hashing additional information

PROBLEMS

Global operations need consistent global standards to be applied across their supply chain, and this is only going to become increasingly difficult with legacy enterprise systems and increased legal costs. Laws recently passed like The California Transparency Supply Chain Act or the Electronic Logging Data Mandate for Trucking add additional burdens to businesses trying to comply with the law, coupled with more demands on increasingly outdated IT systems - this then creates multiple problems for firms. Access to data required for different jurisdictions can be problematic, and barcodes provide an efficient and intuitive way to access that information.

#1 Data Fragmentation

From Suppliers, freight, retailers and vendors there is a lot of information available from disparate sources all concerning the same product

#2 Contextual Problem

Even if that data was available, the issue then becomes how can the consumer or relevant party access that data in an efficient and relevant manner?

#3 Authoritative

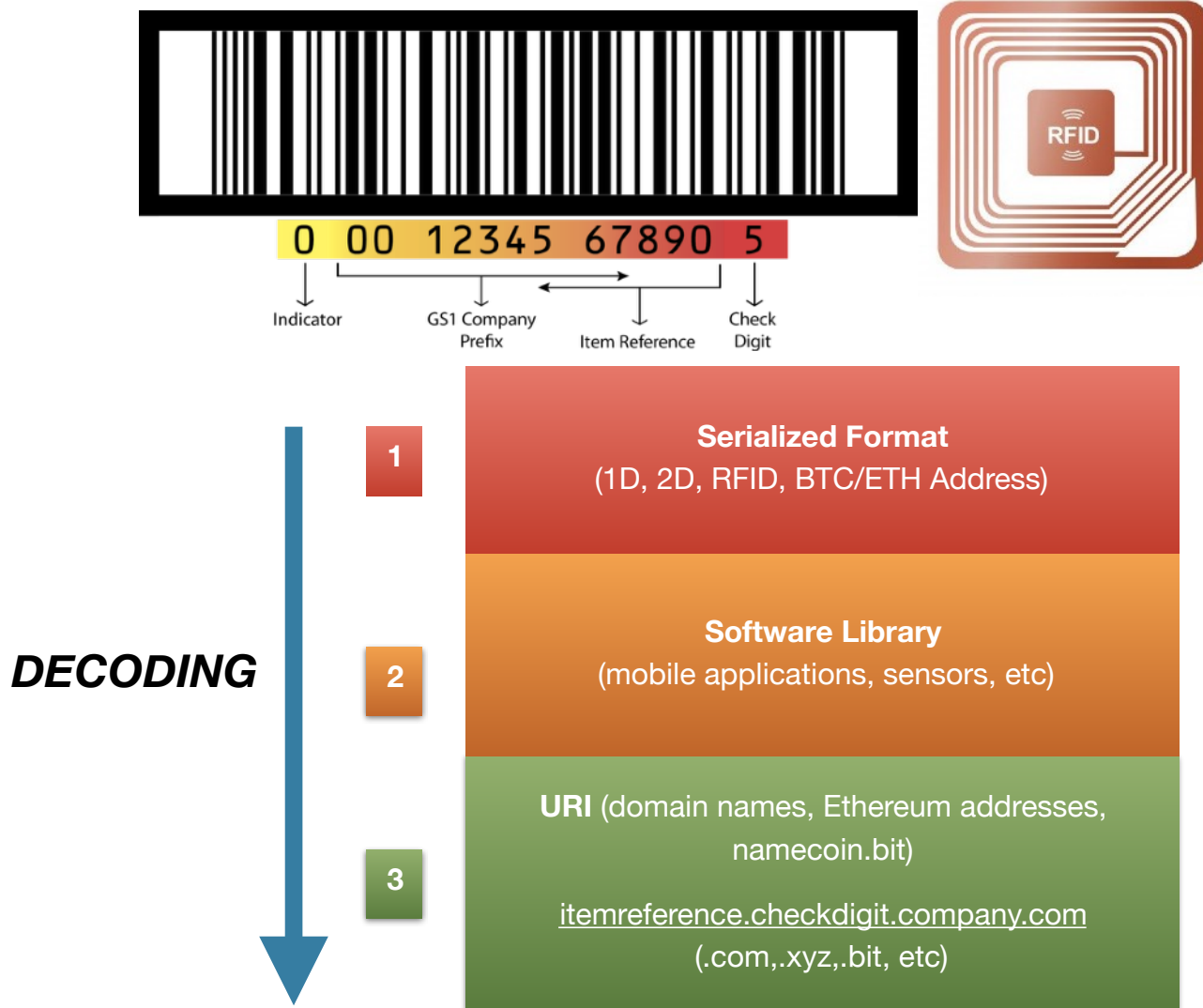
Information you find online might not be the correct information, you have to trust the results you are finding on google

Being able to authenticate a product does not make sense if you don't have a way consumers can easily find that information. The GS1 barcode is how we base everything off of. When you put the capability of a consumer to suddenly find out specifics, you might find out that they actually do care about where it came from, who handled it, what people have to say about it, etc. The business impact can also be seen in industries that still do faxing and physical storage of documents as well, such as healthcare. What good is it if you can authenticate a product if you don't have an easy way to find out if it is authentic?

HOW THE SOFTWARE LIBRARY WORKS

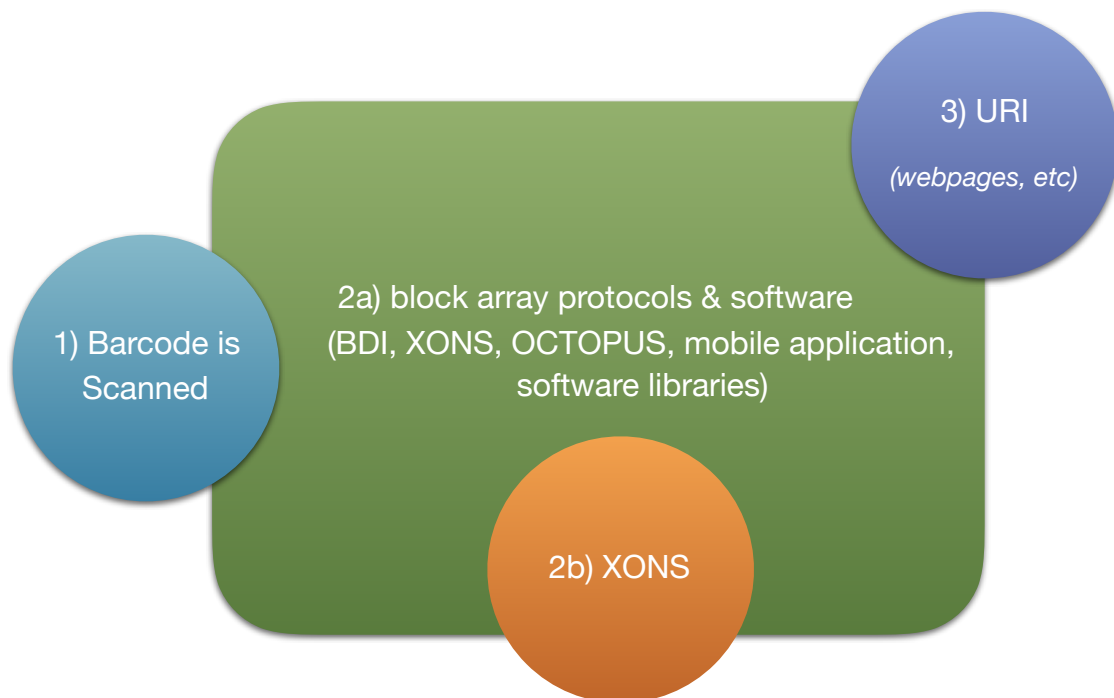
Codename - AGRIPPA

1. Breakdown of the barcode into its constituent parts
2. Parse and compile the constituent elements as defined in the XONS protocol
3. Access the ARRAY.NETWORK and resolve URI



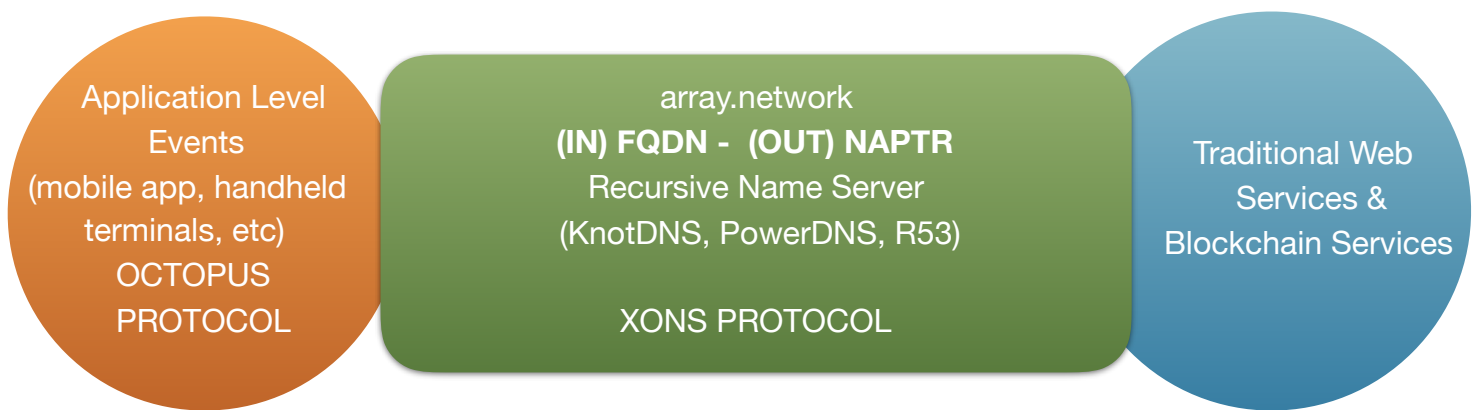
BDI - THE BLOCKCHAIN DATA INTERFACE PROTOCOL

The Blockchain Data Interface is an electronic data interface protocol that allows communication between blockchains and existing software systems, such as ERM, ERPs, etc. The protocol uses a JSON schema to define queries, and can plug in existing RESTful APIs into the system to push requests. BDI is based off of the EDI specifications from GS1 along with some modifications. User activity tracking through a mobile device, such as a warehouse employee fulfilling orders and scanning a barcode for a specific order will be visually tracked through Emerge, our specific application within Visual SmartContracts. The Smart Contract pushes out to the user and the user is granted permission to complete it and pass it on to the next person (this is done automatically by user permissions already). This fulfillment process can be adapted to many industries and supply chain systems. Creating a blockchain protocol based on the ONS/EPCIS specification (eXtensible ONS, XONS) for the access and creation of barcode records (for the tracking and management for shipping and logistics) is a secondary objective. We can get out the gate using a Web based solution to interact with the blockchain, but down the line we fully plan on implementing the protocol specified as a free and open source project. Token holders will have the opportunity to host full nodes or partial nodes for the blockchain network. Block Array will have its own GS1 Prefix, allowing us to issue codes for those who wish to use our own prefix for their products. Token holders will be able to purchase ONS2.0.1 compliant barcodes using our prefix, and domain name service will be provided by us for such issuances. A proportion of the tokens used in the issuance of such barcodes will be burned, providing an anchor to the blockchain by means of the timestamp of the transaction.

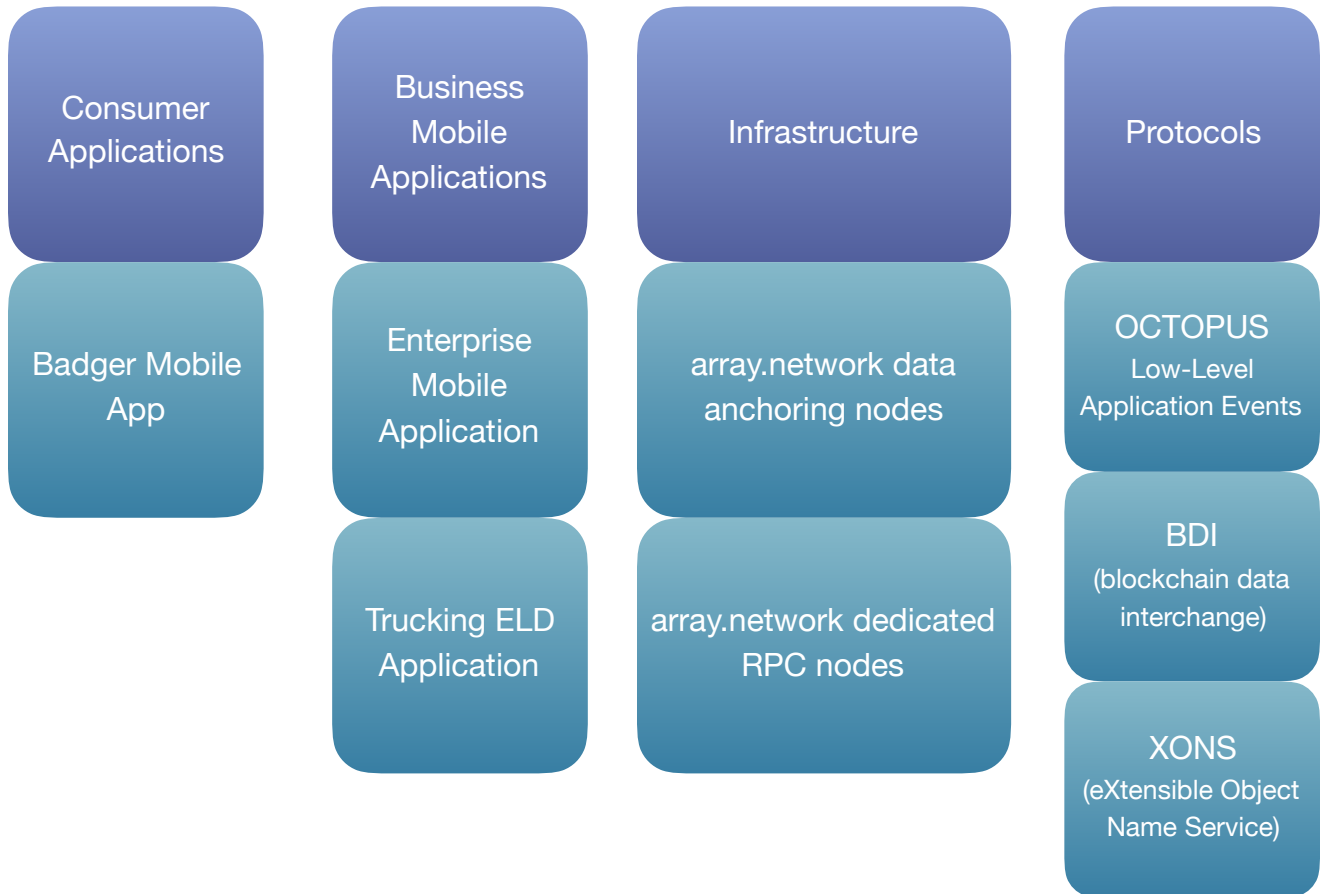


XONS - EXTENSIBLE OBJECT NAME SERVICE

In order to use DNS to find information about an item, the item's GS1 Identification Key must be converted into a format that DNS can understand, which is the typical, "dot" delimited, left-to-right form of all domain names. As the purpose of ONS is to discover data and services associated with a GS1 Identification Key and multiple sets of data and services may exist for that key, the appropriate DNS record type is the Naming Authority PoinTeR (NAPTR) [RFC 3403]. This record type contains several fields for denoting the protocol, services, and features that a given service endpoint exposes. It also allows the service endpoint to be expressed as a URI, thus allowing complex services to be encoded in a standard way. The figure below describes a typical XONS query from start to finish from the viewpoint of a developer. In this example, the starting point is a bar code or RFID tag. However, the source of the GS1 IdentificationKey is not restricted to data carriers; it could be part of a transaction document (e.g. a purchase order), an event record, a master data record, or any other source.



ABSTRACTED OVERVIEW OF THE ENTIRE ARRAY.NETWORK



GS1 BARCODES

With a GS1 Barcode you will have access to large retailers, including Amazon FBA (fulfillment by amazon). It is an international standard that having access to allows your goods to be traded internationally. Buying a GS1 Barcode does not mean that these companies will sell your products, only that you can offer your goods at these retailers. This is only a few of the many retailers that mandate GS1 barcodes. <https://www.gs1.org/>

List of companies that require product data to be in GS1 Format

NABCA (National Alcohol Beverage Control Association)	Amazon FBA (amazon.com)
Acosta, Inc.	Ahold
Safeway	Associated Food Stores, Inc.
Sears	Associated Grocers
Southern Wine and Spirits Inc	Associated Wholesale Grocers
SUPERVALU, Inc.	Best Buy
Target	Carrefour SA
TSN West, Inc (Bunzl)	Defense Supply Center Philadelphia
Wakefern Food Corp	Delhaize
Walgreens	Family Dollar Stores, Inc
Wal-Mart Mexico	Glazers Wholesale Distributor
Wal-Mart Stores, Inc.	Kmart
Webco Alaska	Lowe's Companies Inc.
Webco Hawaii	McLane Company
Wegmans Food Markets	

PRICING OF GS1 BARCODE

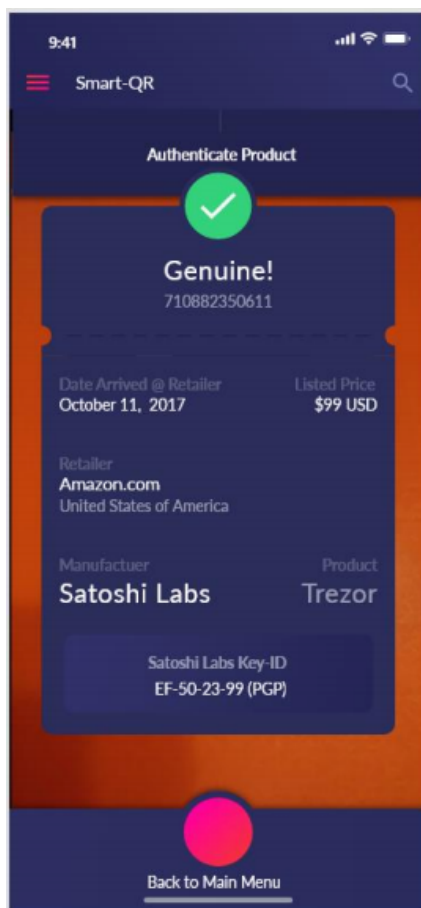
Average Price	Our Price
\$80.00	\$40.00

DEVELOPMENT PROJECTS & PROGRESS

Mobile Application

Consumer: Badger Mobile Application for scanning normal barcodes into URIs, along with support for dual-layer QR Codes

Here is an older screen shot of the mobile application running in an emulation



Enterprise Application

Here we can see the enterprise application development as it syncs to our chainpoint nodes (array.network) and creates the appropriate logs on-the-blockchain along with a push to BrickFTP.

Sketch 9:41 AM 100%

blockarray-enterprise

Object

Anchor

Submit

Documentation Access

Cargo_1 Asset Documentation


To: Acme Distribution Company

From: Acme Supplier Company

Work Order #0x225ajF2x98eZ

ECDSA Private Key ✓ JSON-LD ✓

ECDSA Public Key for Verification
TL0p0H0R0w0X23Z0dxrgtJkrek9rP4wER



NEXT

use touch ID to continue

ARY 10:35 AM 100%

blockarray-enterprise

Object

Anchor

Resolve

Anchor & Store method

Ethereum-ArrayRPC

BrickFTP

IMEI Number

990000862471854

In Progress

Cargo fulfillment

Cargo_1

Delivery Time Est: 2hrs13mins

10:35 AM >

ECDSA Public Key for Verification
TL0p0H0R0w0X23Z0dxrgtJkrek9rP4wER

NEXT

ARY 10:37 100%

blockarray-enterprise

Object

Anchor

Submit

Submit Method

Visual SmartContract

XONS

Permission State

Active Directory OAuth

Website Address

u5d_has_id_3p1ocompany.array.network

verified

Commit Time

Cargo_1 Loaded

Truck #

10:37 AM >

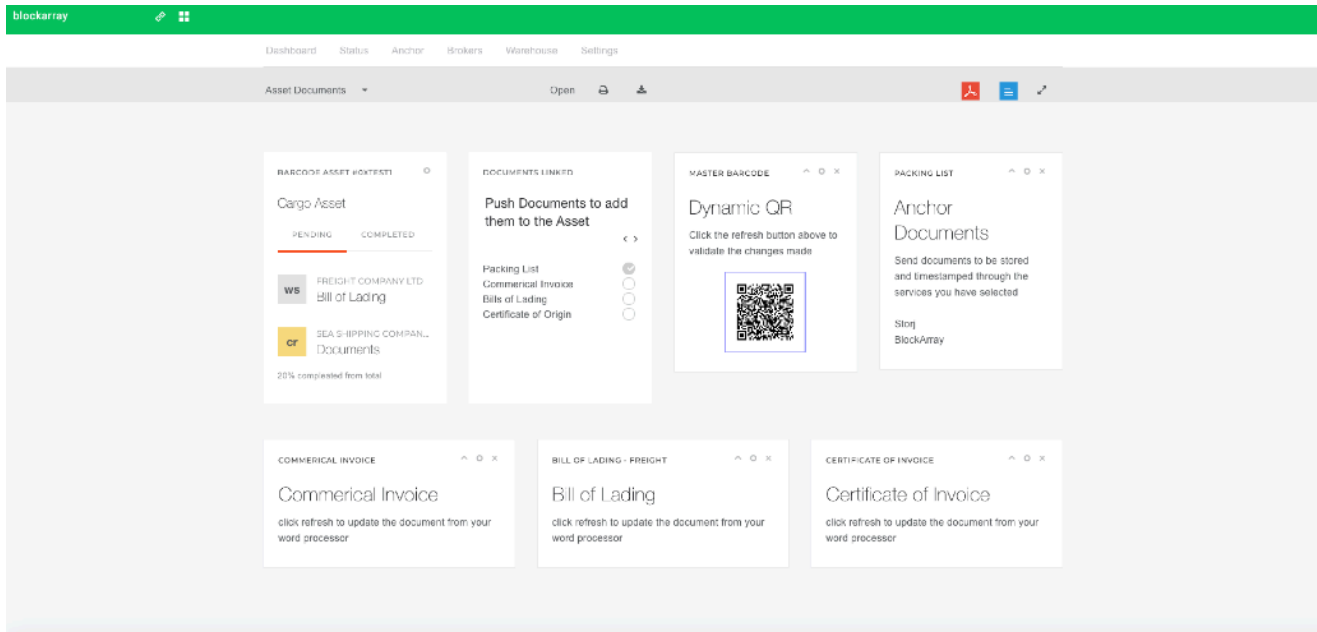
ECDSA Public Key for Verification
TL0p0H0R0w0X23Z0dxrgtJkrek9rP4wER

FINALIZE

Enterprise Application

<http://blockarray.com/demo/vsc/dashboard.html>

Enterprise Dashboard



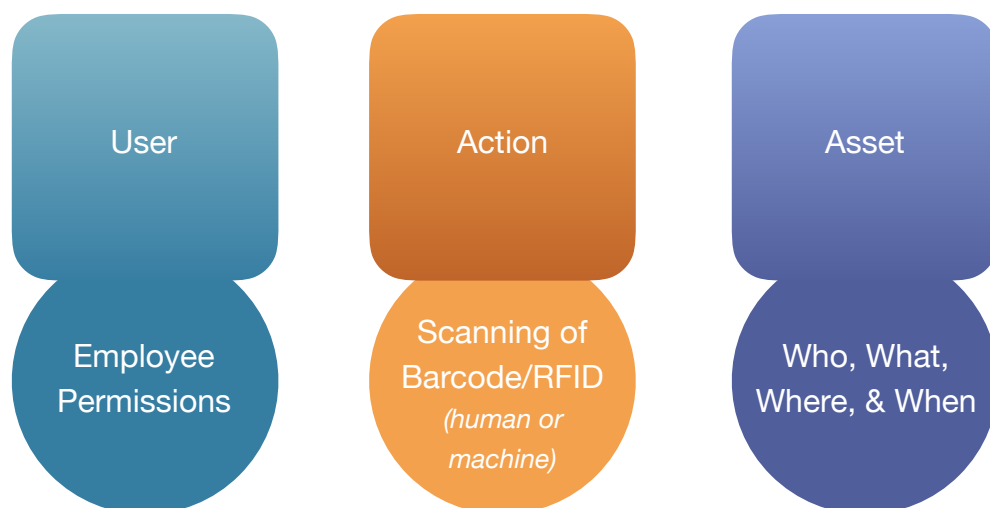
Paperwork is done in the KANBAN style above - Tasks must be completed from left-to-right to progress. Data from previous tasks can be used to auto-complete, and set fields can be updated across all documents.

VISUAL SMARTCONTRACT FRAMEWORK

Object
Aggregation
Transaction
Transformation
Quantity

Event ID / Transaction ID (RFC 4122 either v1 or v4, v4 is used in Hyperledger)

Based on user permissions that are defined in our visual smart contracts platform we define a specific employees permissions. Their permissions are tied to a mobile device (smartphone, handheld terminal, etc). The actions they are allowed to do (such as moving an order onto a truck) are defined by their permissions. The events listed above in the table are the actions normally recorded on an EPCIS server: these events are now interpreted through Transaction IDs on the blockchain.



ROADMAP

WHILE WE WILL DO OUR UTMOST TO ADHERE TO THE ROADMAP, THINGS HAPPEN. WE WILL DO OUR BEST TO ACKNOWLEDGE ANY SETBACKS OR POTENTIAL DELAYS THROUGH OUR WEBSITE, TWITTER, TELEGRAM AND SLACK.

ARRAY.NETWORK LIVE

XONS TEST-NET LIVE

DECEMBER 2017

ARY GS1 TOKEN PROTOCOL

XONS PROTOCOL LIVE

JANUARY 2018

BADGER - CONSUMER MOBILE APP

OCTOPUS PROTOCOL

FEBUARY 2018

ENTERPRISE MOBILE APPLICATION

MARCH 2018

Electronic Logging Device records anchored to blockchain (supply chain)

MARCH 2018 (this is not a FMCSA compliant application, it is to be used in conjunction with existing

VISUAL SMARTCONTRACTS

APRIL/MAY 2018

E-COMMERCE INTEGRATION PLUGINS (WOO-COMMERCE AND MAGENTO)

APRIL 2018

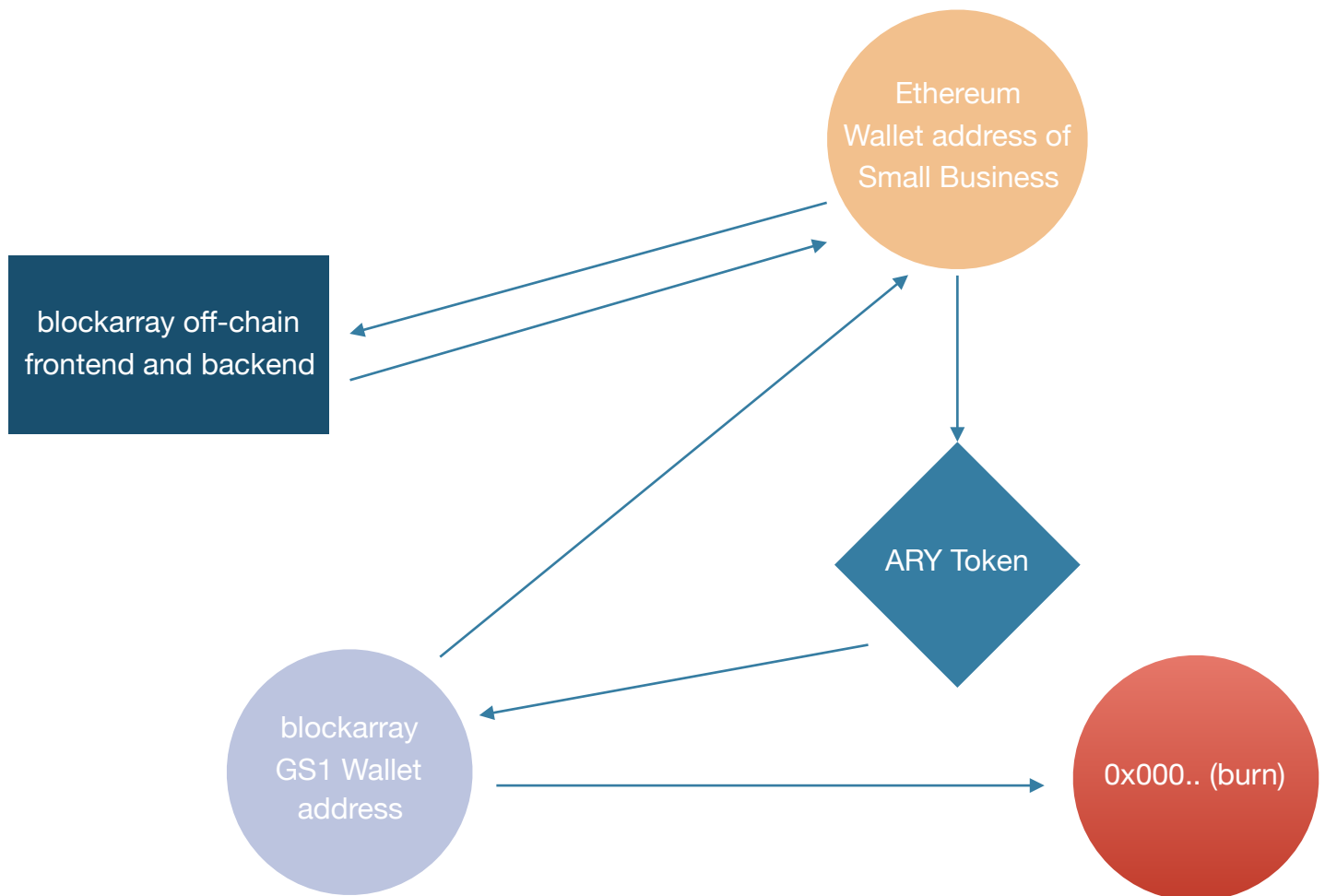
DUAL-LAYER QR CODES

AUGUST 2018

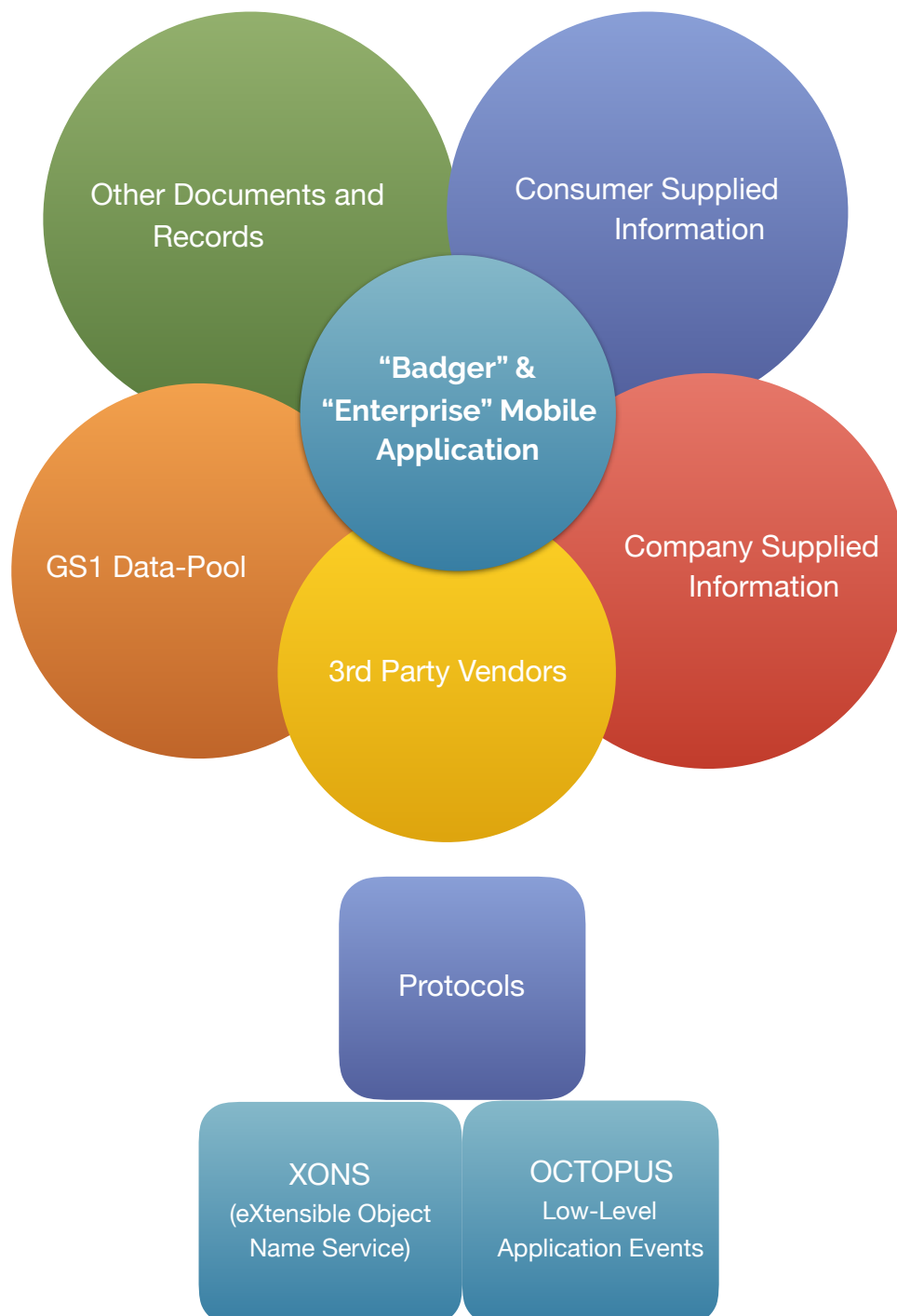
ARY GS1 PROTOCOL

Description and Mechanics

- 1) The small business registers the GS1 Barcode and products with us
- 2) Upon receipt of information, we register the GS1 Barcode.
- 3) The small business then must send us the tokens to a predetermined burn wallet address
- 4) After completion of the GS1 registration, small business is given all the information (Barcode files, packaging placement, etc)
- 5) We then burn the tokens from the wallet address, and the information associated with the burn like the Ethereum wallet address for the small business along with the GS1 Barcode information is included in the Transaction Field.
- 6) GS1 Barcode is created and anchored to the Ethereum blockchain, 1 ARY Token is sent back to the Ethereum Wallet Address for the Small Business.



By scanning the barcode, companies can provide information on a single web-page of disparate information concerning the product. From Medical Devices to Consumer goods, anything that follows a standardized serial format can be aggregated within the context of a barcode



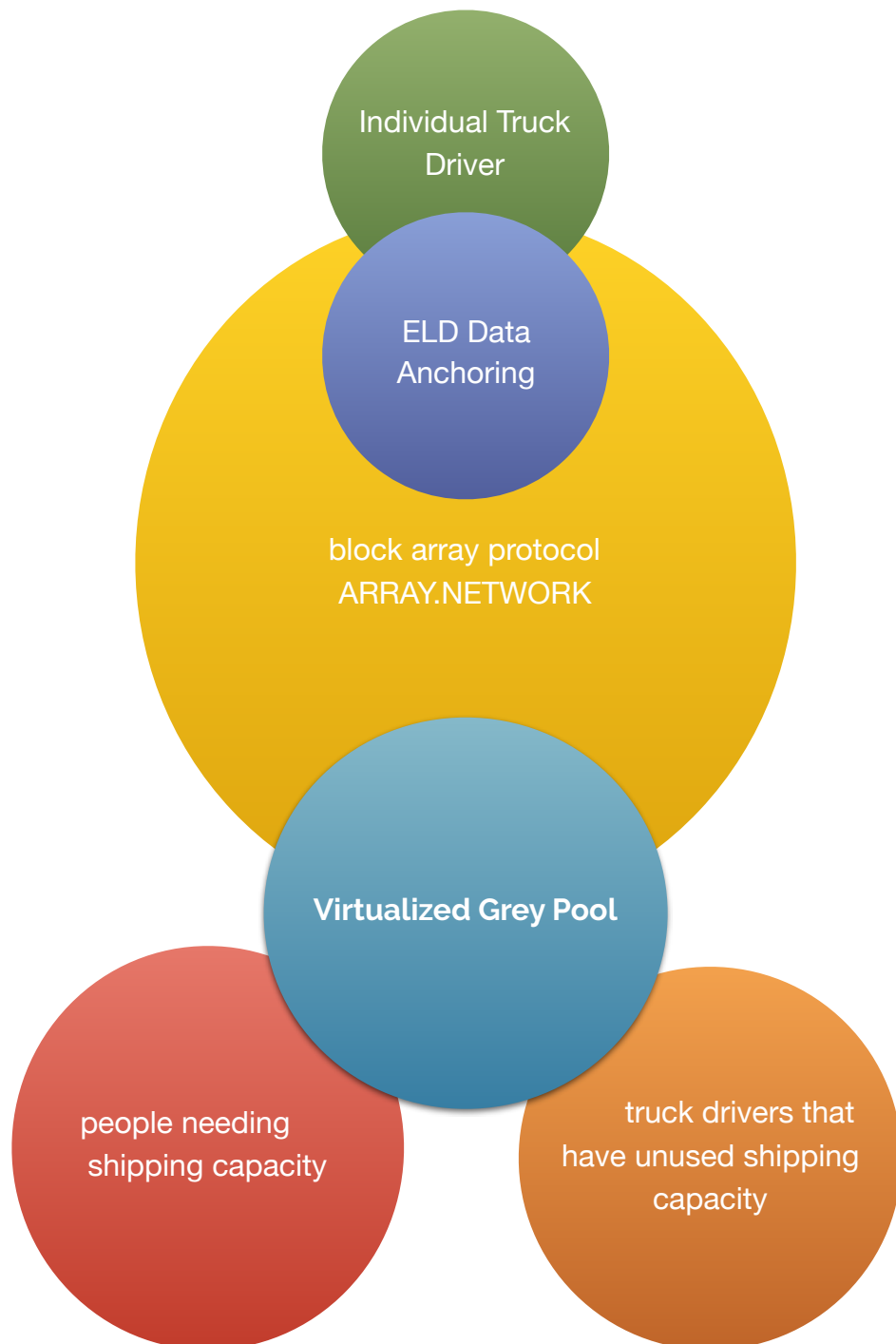
VISUAL SMARTCONTRACTS - USE CASE

HOW INTERACTIONS AND COMMUNICATIONS CAN HELP THE POINT OF CONTACT EMPLOYEE FOR COMPANIES USING VISUAL SMART CONTRACTS SYSTEM

With Smart Contracts, standards can be applied, such as seeing how long an employee at a supplier works in a foreign country, or where the coffee beans were sourced through GPS tracking, seamlessly. The value of smart contracts exists in business logic: the ability to define user actions and permissions in a distributed and decentralized way. Visual SmartContracts follows the KANBAN methodology: Based on user permissions they are given access to orders as they progress through the system. You will be able to see work orders, purchase orders, etc in real time as they are processed through the system using barcode scans throughout the scans. We can see here how business logic can filter out what a point of contact person (in this example a customer support person) can be assisted through the use of business logic (smart contracts).



VIRTUALIZED GREY POOL - USE CASE



SUPPORTED BLOCKCHAINS

Hyperledger Fabric

(Our main net will be deployed when PBFT is implemented in Q1 2018, sawtooth Q3 2018 tentative)

Ethereum

(Present)

Cardano

(Q3/Q4 2018)

Chainpoint

(we have our own nodes, array.network, functional and operating)

Oracles POA

(support for notary services through visual smartcontracts)

Tokens will be interoperable for any services on supported blockchains where we have some control, e.g. side chains)

3rd party smart contract integration in visual smart contracts to be on-going

PUTTING IT ALL TOGETHER

In this paper we have outlined the major issues and current methodologies/technologies deployed in supply chain management. We can see that the system is hugely monolithic and requires a vast up-front cost to implement to truly have an adaptable global supply chain. Our approach to adapting these for use with a private & permission based distributed ledger system does not try and “re-invent” the wheel, but rather use existing terminology and design aspects to better adapt the system to current technology trends and allow easier integration among disparate systems. Ultimately we are not seeking to supplant any GS1 specifications or standards, but use them as they were intended to be used: as a global communication framework to allow companies to talk to each other.

- How we can get normal barcodes to automatically point to a URL/URI
 - How we can use physical actions such as scanning a barcode to record transactions onto the blockchain
 - How we can provide that information in a similar fashion that supply chain companies are familiar with, but do not have access to necessarily, nor do they have the level of data or granularity that we can provide
 - Utilize new technology to improve QR codes to help fight counterfeiting
 - Create new product identification mechanisms to ensure product is authentic using current technology
 - How we can track assets without the use of RFID tags with only updated software
 - Create a virtualized “grey-pool” for businesses to have access to unused shipping capacity
 - How our token can actually be used for small businesses to gain access to larger customers
 - Lower the barrier of entry for new businesses in accessing existing marketplaces like Amazon
 - How our Protocol Anchors GS1 Barcode creation to the blockchain and points to that businesses associated Ethereum Wallet Address
-

CROWD SALE INFORMATION

For the Token Spreadsheet please read:

http://bit.ly/blockarray-token_info

Tokens are unlocked when crowd sale ends

Tokens are only generated with ETH contributions

GS1 Barcodes are anchored by burning ARY Tokens. \$40 for 1 GS1 Barcode which means \$39.98 worth of ARY

Tokens must be burned to finalize and anchor the creation to the blockchain.

Only 100,000 Barcodes Available

Pre-Sale is only open to whitelist

Whatever bonuses remain after the whitelist period (pre-sale) ends, will be available to the public (un-whitelisted) crowd sale portion

“VESTING” PERIOD

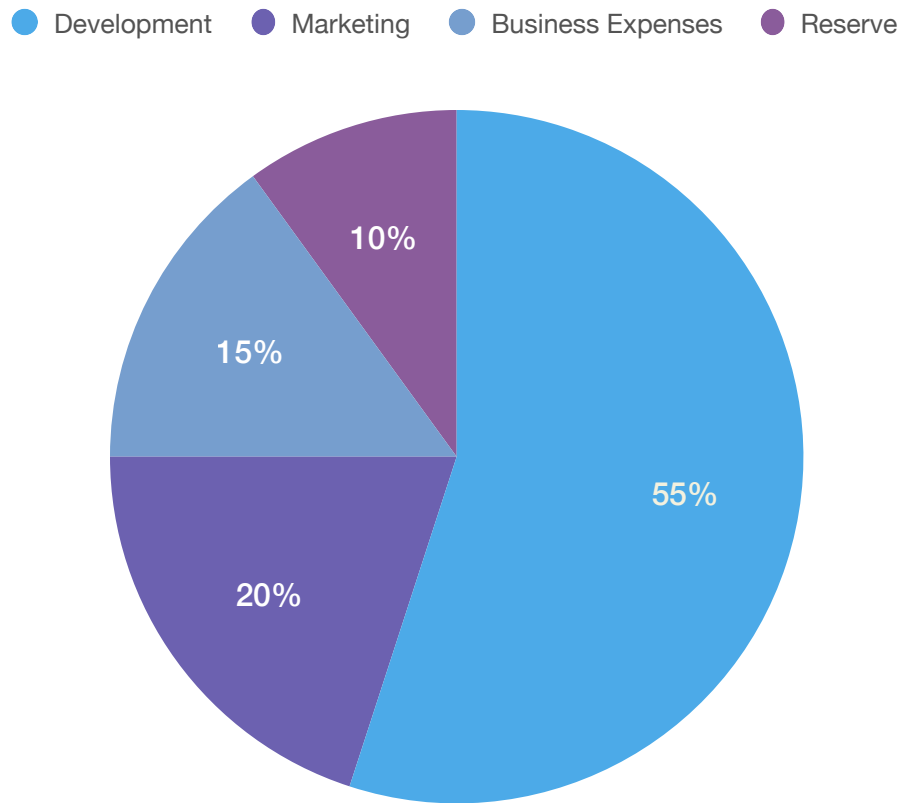
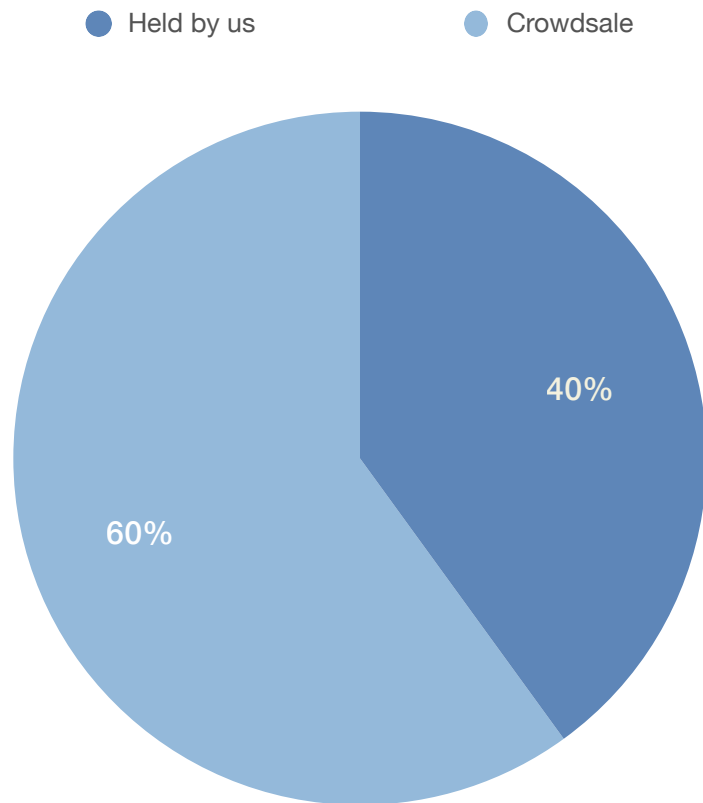
Do not think that because we use the term “vesting” that this implies an equity ownership stake into Block Array LLC. We use the term out of convenience.

Tokens held by us (Block Array LLC) will follow this scheme:

9 month cliff - If employee leaves before 9 months, 0 tokens.

4 year normal vesting afterwards.

Right of First Refusal - Any tokens held by individuals associated with Block Array must be offered to us first before they can be sold to any individual or exchange or marketplace



E-mail:
contact@blockarray.com

Telegram:
https://t.me/blockarray_ito

block array llc

Chattanooga, Tennessee
